

IN THE SPECIFICATION:

Please delete the paragraphs beginning at page 5, line 1, and ending at page 7, line 8, in their entirety, and insert the following therefor:

--- BRIEF DESCRIPTION OF THE FIGURES

FIG. 1. shows the DNA sequence (SEQ ID NO: 1) and the amino acid sequence (SEQ ID NO: 2) encoded by the *E. chaffeensis* (*p28*) gene cloned in pCRIIOMP-1 protein (P28) determined chemically is underlined. Five amino acid residues at the N terminus of P28 which were not included in the *p28* gene, are indicated by boldface. Arrows indicate annealing positions of the primer pair designed for PCR.

FIG. 2. shows the restriction map of 6.3-kb genomic DNA including the *omp-1* gene copies in *E. chaffeensis*. The four DNA fragments were cloned from the genomic DNA (pPS2.6, pPS3.6, pEC2.6, and pEC3.6). A recombinant plasmid pPS2.6 has an overlapping sequence with that of pEC3.6. The closed boxes at the bottom show PCR-amplified fragments from the genomic DNA for confirmation of the overlapping area. Open boxes at the top indicate open reading frames (ORF) of *omp-1* gene copies with direction by arrows. Open boxes at the bottom show DNA fragments subcloned for DNA sequencing.

FIG. 3B shows one embodiment of the OMP-1 protein (SEQ ID NO: 2); FIG. 3A shows one embodiment of the OMP-1 polynucleotide (SEQ ID NO: 1).

FIG. 4B shows one embodiment of the OMP-1B protein (SEQ ID NO: 4); FIG. 4A shows one embodiment of the OMP-1B polynucleotide (SEQ ID NO: 1).

FIG. 5A shows one embodiment of the OMP-1C polynucleotide (SEQ ID NO: 5); FIG. 5B shows one embodiment of the OMP-1C protein (SEQ ID NO: 6).

FIG. 6B shows one embodiment of the OMP-1D protein (SEQ ID NO: 8); FIG. 6A shows one embodiment of the OMP-1D polynucleotide (SEQ ID NO: 7).

FIG. 7B shows one embodiment of the OMP-1E protein (SEQ ID NO: 10); FIG. 7A shows one embodiment of the OMP-1E polynucleotide (SEQ ID NO: 9).

FIG. 8B shows one embodiment of the OMP-1F protein (SEQ ID NO: 12); FIG. 8A shows one embodiment of the OMP-1F polynucleotide (SEQ ID NO: 11).

FIG. 9B shows one embodiment of the OMP-1A protein (SEQ ID NO: 14); FIG. 9A shows one embodiment of the OMP-1A polynucleotide (SEQ ID NO: 13).

FIG. 10B shows one embodiment of a portion of the OMP-1R protein (SEQ ID NO: 16); FIG. 10A shows one embodiment of an OMP-1R polynucleotide (SEQ ID NO: 15) encoding such polypeptide.

FIG. 11B shows one embodiment of a portion of the OMP-1S protein (SEQ ID NO: 18); FIG. 11A shows one embodiment of the OMP-1S polynucleotide (SEQ ID NO: 17) encoding such polypeptide.

FIG. 12B shows one embodiment of a portion of the OMP-1T protein (SEQ ID NO: 20); FIG. 12A shows one embodiment of the OMP-1T polynucleotide encoding such polypeptide (SEQ ID NO: 19).

FIG. 13B shows one embodiment of the OMP-1U protein (SEQ ID NO: 22); FIG. 13A shows one embodiment of the OMP-1U polynucleotide (SEQ ID NO: 21).

FIG. 14B shows one embodiment of the OMP-1V protein (SEQ ID NO: 24); FIG. 14A shows one embodiment of the OMP-1V polynucleotide (SEQ ID NO: 23).

FIG. 15B shows one embodiment of the OMP-1W protein (SEQ ID NO: 26); FIG. 15A shows one embodiment of the OMP-1W polynucleotide (SEQ ID NO: 25).

FIG. 16B shows one embodiment of the OMP-1X protein (SEQ ID NO: 28); FIG. 16A shows one embodiment of the OMP-1X polynucleotide (SEQ ID NO: 27).

FIG. 17B shows one embodiment of the OMP-1Y protein (SEQ ID NO: 30); FIG. 17A shows one embodiment of the OMP-1Y polynucleotide (SEQ ID NO: 29).

FIG. 18B shows one embodiment of the OMP-1Z protein (SEQ ID NO: 50); FIG. 18A shows one embodiment of the OMP-1Z polynucleotide (SEQ ID NO: 49).

FIG. 19B shows one embodiment of the P30 protein (SEQ ID NO: 32); FIG. 19A shows one embodiment of the P30 polynucleotide (SEQ ID NO: 31).

FIG. 20B shows one embodiment of the P30a protein (SEQ ID NO: 34); FIG. 20A shows one embodiment of the p30a polynucleotide (SEQ ID NO: 33).

FIG. 21B shows one embodiment of the P30-1 protein (SEQ ID NO: 36); FIG. 21A shows one embodiment of the p30-1 polynucleotide (SEQ ID NO: 35).

FIG. 22B shows one embodiment of the P30-2 protein (SEQ ID NO: 38); FIG. 22A shows one embodiment of the p30-2 polynucleotide (SEQ ID NO: 37).

FIG. 23B shows one embodiment of the P30-3 protein (SEQ ID NO: 40); FIG. 23A shows one embodiment of the p30-3 polynucleotide (SEQ ID NO: 39).

FIG. 24B shows one embodiment of the P30-4 protein (SEQ ID NO: 42); FIG. 22A shows one embodiment of the p30-4 polynucleotide (SEQ ID NO: 41).

FIG. 25B shows one embodiment of the P30-5 protein (SEQ ID NO: 44); FIG. 22A shows one embodiment of the p30-5 polynucleotide (SEQ ID NO: 43).

FIG. 26B shows one embodiment of the P30-6 protein (SEQ ID NO: 54); FIG. 26A shows one embodiment of the p30-6 polynucleotide (SEQ ID NO: 53).

FIG. 27B shows one embodiment of the P30-7 protein (SEQ ID NO: 56); FIG. 27A shows one embodiment of the p30-7 polynucleotide (SEQ ID NO: 55).

FIG. 28B shows one embodiment of the P30-8 protein (SEQ ID NO: 46); FIG. 28A shows one embodiment of the p30-8 polynucleotide (SEQ ID NO: 45).

FIG. 29B shows one embodiment of a portion of the P30-9 protein (SEQ ID NO: 58); FIG. 29A shows one embodiment of the p30-9 polynucleotide (SEQ ID NO: 57).

FIG. 30B shows one embodiment of a portion of the P30-10 protein (SEQ ID NO: 48); FIG. 30A shows one embodiment of the p30-10 polynucleotide (SEQ ID NO: 47) encoding such protein.

FIG. 31B shows one embodiment of a portion of the P30-11 protein (SEQ ID NO: 60); FIG. 31 A shows one embodiment of the p30-11 polynucleotide (SEQ ID NO: 59).

FIG. 32B shows one embodiment of a portion of the P30-12 protein (SEQ ID NO: 62); FIG. 32A shows one embodiment of the p30-12 polynucleotide (SEQ ID NO: 61).

FIG. 33B shows one embodiment of a portion of the OMP-1H protein (SEQ ID NO: 52); FIG. 33A shows one embodiment of the OMP-1H polynucleotide (SEQ ID NO: 51).---

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of the claims in this application.

Listing of claims:

1-14 (Canceled)

15. (Currently Amended) A method for diagnosing an infection with *E. chaffeensis* in a patient comprising the steps of:

- (a) providing a serum sample from the patient;
- (b) providing a one or more of the following: ~~selected from the group consisting of the polypeptide of claim 9, the polypeptide of claim 3, and mixtures thereof;~~
 - i.) an isolated or purified outer membrane protein of ~~*E. chaffeensis*~~ *E. chaffeensis* or an immunoreactive fragment thereof, wherein said ~~purified~~ outer membrane protein is selected from ~~the group consisting of~~ the OMP-1 protein, the OMP-1R protein, the OMP-1S protein, the OMP-1T protein, the OMP-1U protein, the OMP-1V protein, the OMP-1W protein, the OMP-1X protein, the OMP-1Y protein, the OMP-1Z protein, and the OMP-1H protein,
 - ii) an isolated or purified outer membrane protein of ~~*E. canis*~~ *E. canis*, or an immunoreactive fragment thereof, wherein said outer membrane ~~protein~~ protein is selected from ~~the group consisting of~~ the P30 protein or a variant thereof having the same immunological characteristics as the P30 protein, the P30a protein, the P30-1 protein, the P30-2 protein, the P30-3 protein, the P30-4 protein, the P30-5 protein, the P30-6 protein, the P30-7 protein, the P30-8 protein, the P30-9 protein, the P30-11 protein, and the P20-12 protein, and the P30-13 protein;
- (c) contacting the serum sample with the ~~polypeptide~~ outer membrane protein or immunoreactive fragment thereof; and
- (d) assaying for the formation of a complex between antibodies in the serum sample and the ~~polypeptide~~ protein or ~~immunoreactive~~ immunoreactive fragment thereof, wherein formation of said complex is indicative of infection with *E. chaffeensis* or *E. canis*.

16. (Currently Amended) The method of claim 5 15, wherein said protein is the P30 protein, or an antigenic fragment of the P30 protein.

17. (Currently Amended) The method of claim 15, wherein the protein has an amino acid sequence ~~which~~ that is at least 95% identical to amino acid 33 through amino acid 224 of the sequence, SEQ ID NO: 32, shown in Fig. 19B.

18. (Currently Amended) The method of claim 15, wherein said protein has an amino acid sequence comprising amino acid 26 through amino acid 281 of the sequence, SEQ ID NO: 2, shown in FIG 3B.

19. (Currently Amended) A method for diagnosing an infection with *E. canis* in a Canidae patient comprising ~~the steps of:~~

(a) providing a serum sample from the patient ;

(b) providing a an isolated or purified outer membrane of *E. canis* or a variant thereof, or an immunoreactive fragment thereof, wherein said outer membrane protein is selected from the group consisting of ii) an outer membrane protein of *E. canis* *E. canis*, or an immunoreactive fragment thereof, wherein said outer membrane ~~proein~~ protein is selected from the group consisting of the P30 protein or a variant thereof having the same immunological characteristics as the P30 protein, the P30a protein, the P30-1 protein, the P30-2 protein, the P30-3 protein, the P30-4 protein, the P30-5 protein, the P30-6 protein, the P30-7 protein, the P30-8 protein, the P30-9 protein, the P30-11 protein, the P20-12 protein, and the P30-13 protein;

(c) contacting the serum sample with the outer membrane protein; and

(d) assaying for the formation of a complex between antibodies in the serum sample and the polypeptide protein or immunoreactive fragment thereof, wherein formation of said complex is indicative of infection with *E. canis*.

20. (Withdrawn)

21-23. (Canceled)

24. (Currently Amended) The method of claim 15, wherein the polypeptide is an antigenic fragment of SEQ ID NO: 32.

25. (Currently Amended) A method for diagnosing an *E. canis* infection in an animal comprising:

a) contacting a serum sample from the animal with an *E. canis* P30 protein or an antigenic fragment of the *E. canis* P30 protein, wherein said *E. canis* P30 protein comprises amino acid 26 through amino acid 288 of SEQ ID NO: 32, and

b) assaying for the formation of complex between antibodies in the serum sample and the *E. canis* P30 protein or the antigenic fragment of the *E. canis* P30 protein, wherein formation of said complex is indicative of infection with *E. canis*.

26. (Currently Amended) The method of claim 25, wherein said antigenic fragment comprises amino acid 33 through amino acid 224 of SEQ ID NO. 32.

27. (Withdrawn)

28. (Previously Presented) A kit for diagnosing *E. canis* in an animal, said kit comprising the *E. canis* P30 protein, an antigenic fragment of the *E. canis* P30 protein, or both.

29. (Currently Amended) The kit of claim 28, wherein said antigenic fragment comprises amino acid 33 through amino acid 224 of SEQ ID NO. 32.

30. (Currently Amended) The kit of claim 28, further comprising a biomolecule for detecting interaction between the reagent and antibodies in a bodily sample of the animal.